CLAIMS

What is claimed is:

1. An *in vitro* method for the diagnosis of NASH, or for the evaluation of the susceptibility of a subject to develop NASH, that comprises:

a) obtaining an liver tissue sample from a subject;

b) detecting and quantifying in said liver tissue sample the level of a protein selected from apolipoprotein A1 (APA1), mitochondrial ATPase β subunit (ATPB), leukotriene A4 hydrolase (LKHA), keratin 18 (K1CR), guanidinoacetate N-methyltransferase (GAMT), superoxide dismutase (SODC), albumin (ALBU), antioxidant protein 2 (AOP2) (isoforms 1 and 2), prohibitin 1 (PHB1), methionine adenosyl transferase (MAT), long-chain acyl-CoA dehydrogenase (ACDL), selenium binding protein (SBP), and their combinations; and

c) comparing the results obtained in step b) with normal reference values for said proteins in liver tissue.

2. A method according to claim 1, in which said subject is a human being.

3. A method according to claim 1, in which the detection and quantification of said protein selected from APA1, ATPB, LKHA, K1CR, GAMT, SODC, ALBU, AOP2 (isoform 1), AOP2 (isoform 2), PHB1, MAT, ACDL and/or SBP is performed by means of the use of specific antibodies against said proteins.

4. A method according to claim 3, in which said antibodies comprise monoclonal antibodies, polyclonal antibodies, recombinant fragments of antibodies, combibodies and fragments of Fab or scFv of specific antibodies against said proteins.

5. A method according to claim 1, in which the detection and quantification of said protein selected from APA1, ATPB, LKHA, K1CR, GAMT, SODC, ALBU, AOP2 (isoform 1), AOP2 (isoform 2), PHB1, MAT, ACDL and/or SBP is performed by ELISA or Western blotting techniques, or by the use of devices of the kind of biochips

or protein microarrays which include specific antibodies against the proteins to be detected.

6. A method according to claim 1, which comprises the detection and quantification of the level of a protein selected from APA1, ATPB, LKHA, K1CR, GAMT, SODC, ALBU, AOP2 (isoform 1), AOP2 (isoform 2), PHB1, MAT, ACDL and SBP.

7. A method according to claim 1, which comprises the detection and quantification of the level of two or more proteins, each one independently selected from APA1, ATPB, LKHA, K1CR, GAMT, SODC, ALBU, AOP2 (isoform 1), AOP2 (isoform 2), PHB1, MAT, ACDL and SBP.

8. A method according to claim 1, in which when the comparison of the results obtained in step b) with normal values, of reference, indicates that:

(i) the concentration of at least one of the proteins APA1, ATPB, LKHA, K1CR, GAMT, SODC, ALBU or AOP2 (isoform 1), is higher than the highest limit of the normal reference values for said proteins in liver tissue; and/or

(ii) the concentration of at least one of the proteins PHB1, AOP2 (isoform 2), MAT, ACDL or SBP is lower than the lowest limit of the normal values of reference for said proteins in liver tissue,

then, said results are indicative of the existence of NASH in the subject whose liver tissue sample has been assayed or of the existence of a susceptibility of said subject to develop NASH in the future.

9. A method according to claim 1, in which said protein to be detected and quantified is selected from APA1, ATPB, LKHA, K1CR, PHB1 and their combinations.

10. A method according to claim 9, which comprises the detection and quantification of the level of a protein selected from APA1, ATPB, LKHA, keratin 18 and PHB1.

11. A method according to claim 9, which comprises the detection and quantification of the levels of, at least, two proteins, each one independently selected from APA1, ATPB, LKHA, K1CR and PHB1.

12. A method according to claim 9, which comprises the detection and quantification of the levels of three or four proteins, each one independently selected from APA1, ATPB, LKHA, K1CR and PHB1.

13. A method according to claim 9, which comprises the detection and quantification of the levels of proteins APA1, ATPB, LKHA, K1CR and PHB1.

14. The use of a protein selected from apolipoprotein A1 (APA1), mitochondrial ATPase β subunit (ATPB), leukotriene A_4 hydrolase (LKHA), keratin 18 (K1CR), guanidinoacetate N-methyltransferase (GAMT), superoxide dismutase (SODC), albumin (ALBU), antioxidant protein 2 (AOP2) (isoforms 1 and 2), prohibitin 1 (PHB1), methionine adenosyl transferase (MAT), long-chain acyl-CoA dehydrogenase (ACDL), selenium binding protein (SBP), and their combinations, in an *in vitro* method to diagnose NASH or to evaluate the susceptibility of a subject to develop NASH.

15. The use of a protein according to claim 14, wherein the *in vitro* method is conducted on a liver tissue sample from said subject, and comprises quantifying level of said protein in said liver tissue sample, in relation to normal reference values for said protein in liver tissue, to determine presence of or susceptibility to NASH in said subject.

16. An in vitro method for assessment of a liver tissue sample from a subject, to determine presence of or susceptibility to NASH in said subject, said method comprising:

a) detecting and quantifying in said liver tissue sample the level of a protein selected from apolipoprotein A1 (APA1), mitochondrial ATPase β subunit (ATPB), leukotriene A4 hydrolase (LKHA), keratin 18 (K1CR), guanidinoacetate N-methyltransferase (GAMT), superoxide dismutase

(SODC), albumin (ALBU), antioxidant protein 2 (AOP2) (isoforms 1 and 2), prohibitin 1 (PHB1), methionine adenosyl transferase (MAT), long-chain acyl-CoA dehydrogenase (ACDL), selenium binding protein (SBP), and their combinations; and

b) comparing the results obtained in step a) with normal reference values for said proteins in liver tissue.